

Attorney Docket No.: KUZ0028US.NP
Inventors: Tateishi et al.
Serial No.: 10/566,350
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REMARKS

Claims 1-9, 11 and 13-20 are pending in the instant application. Claims 1-9, 11 and 13-20 have been rejected. Claim 1 has been amended. Support for this amendment is provided in the specification at pages 6-7. No new matter has been added by these amendments. Reconsideration is respectfully requested in light of the amendments and the following remarks.

Rejection of Claims 1-9, 11 and 13-20

under 35 U.S.C. 103(a)

The rejections of claims 1-9, 11 and 13-20 under 35 U.S.C. 103(a) have been maintained for reasons of record set forth in the Office Actions mailed December 11, 2007 and April 10, 2007. Specifically, claim 20 was rejected under 35 U.S.C. 103(a) as being unpatentable over Modamio et al. (Int. J. Pharmaceutics 1998 173:141-148) in view of Hirano et al. (U.S. Patent 6,495,159). Claims 1-9, 11 and 13-19 were rejected under 35 U.S.C. 103(a) as being unpatentable over Modamio et al. (Int. J. Pharmaceutics 1998 173:141-148) in view of Hirano et al. (U.S. Patent 6,495,159) and Higo et al. (U.S. Patent 5,866,157) further evidenced by Walters (Transdermal Drug Delivery, 1989, New York, NY, pp 97-246),

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has also been maintained. Arguments presented by Applicants in the response filed July 3, 2008 were found unpersuasive.

Applicants respectfully traverse these rejections.

At the outset, it is respectfully pointed out that claim 1 has been amended to be drawn to an adhesive patch having a pressure-sensitive adhesive layer comprising bisoprolol and/or a pharmaceutically acceptable salt thereof, wherein said adhesive layer is a matrix type, and the composition thereof contains an acrylic polymer obtained by copolymerizing a (meth)acrylic ester with a (meth)acrylic acid comprising a carboxyl group and the penetration rate of bisoprolol through skin is 3-300 $\mu\text{g}/\text{h}\cdot\text{cm}^2$. Support for this amendment is provided at pages 6 and 7 of the instant specification. Accordingly, claim elements or features of the adhesive patch of the present invention include:

Feature A: a pressure-sensitive adhesive layer comprising bisoprolol and/or a pharmaceutically acceptable salt thereof;

Feature B: said adhesive layer is a matrix type;

Feature C: the composition of the pressure sensitive adhesive layer contains an acrylic polymer obtained by copolymerizing a (meth)acrylic ester with a (meth)acrylic acid comprising a carboxyl group; and

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Feature D: the penetration rate of bisoprolol through skin is 3-300 $\mu\text{g}/\text{h}\cdot\text{cm}^2$.

The cited combinations of references do not teach or suggest the claimed invention as a whole as required to establish obviousness of the invention. See MPEP 2141.

As acknowledged by the Examiner, Modamio does not teach a patch comprising bisoprolol, wherein the penetration rate of bisoprolol is 3-300 $\mu\text{g}/\text{h}\cdot\text{cm}^2$. Thus, this reference does not teach or suggest either Features A or D as outlined above of the claimed invention. This reference also provides no teaching or suggestion of use of a polymer to improve penetration rate or an adhesive patch having a matrix type adhesive layer. Thus, Modamio also fails to teach or suggest Features C or B as outlined above.

Secondary references of Hirano and Higo fail to remedy deficiencies in the teachings of Modamio.

Hirano does not teach or suggest percutaneous administration of bisoprolol and thus also fails to teach or suggest Features A or D as outlined above of the instant claimed invention. Further, teachings of Hirano relate to a reservoir type apparatus wherein the drug is contained in a medicine storage layer (see teachings of Hirano at col. 4, line 1) preferably in a liquid or semi-liquid state (see

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col. 4, lines 25-26) containing no elastomer (col. 4, line 25 to col. 5, line 16). In contrast, the patch of the instant invention comprises an adhesive layer which is matrix type, wherein the drug bisoprolol is contained in the pressure sensitive adhesive layer. Issues concerning stability of bisoprolol in this adhesive layer in accordance with the present invention are completely different from stability of a drug in a medicine storage layer as taught by Hirano and are in no way addressed by teachings of Hirano. Clearly the reservoir apparatus of Hirano et al. also fails to teach or suggest the matrix type adhesive layer (Feature B) of the instant claims.

Higo also does not teach or suggest percutaneous administration of bisoprolol and thus also fails to teach or suggest Features A or D as outlined above of the instant claimed invention. Higo also does not specifically teach a patch using an acrylic polymer and more importantly provides no teaching of an acrylic polymer obtained by copolymerizing a (meth)acrylic ester with a (meth)acrylic acid comprising a carboxyl group as set forth in the claims. Thus, Higo also fails to teach or suggest Feature C as outlined above of the claimed invention.

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Further, none of the cited references of Modamio, Hirano and Higo alone or in combination teach or suggest any polymers which maintain stability of bisoprolol as an active substance, let alone that an acrylic polymer which contains substantially no alcoholic hydroxyl groups in the molecule has such ability and provides for a constant penetration rate of 3-300 $\mu\text{g}/\text{h}\cdot\text{cm}^2$.

Accordingly, the cited combinations of references fail to teach or suggest claim limitations of

Feature A: a pressure-sensitive adhesive layer comprising bisoprolol and/or a pharmaceutically acceptable salt thereof;

Feature B: said adhesive layer is a matrix type;

Feature C: the composition of the pressure sensitive adhesive layer contains an acrylic polymer obtained by copolymerizing a (meth)acrylic ester with a (meth)acrylic acid comprising a carboxyl group; and/or

Feature D: the penetration rate of bisoprolol through skin is 3-300 $\mu\text{g}/\text{h}\cdot\text{cm}^2$,

as required to render obvious the instant claimed invention.

Further, the cited combinations of references provide no reasonable expectation of success with respect to the

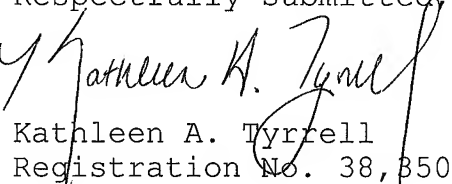
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instant claimed invention wherein bisoprolol is demonstrated to be stable a matrix type adhesive layer and provide a patch with an improved penetration rate of 3-300 $\mu\text{g}/\text{h}\cdot\text{cm}^2$ through the skin and a constant blood concentration of bisoprolol. Such reasonable expectation of success is also required to render obvious the instant claimed invention.

Withdrawal of this rejection under 35 U.S.C. 103(a) is therefore respectfully requested.

Conclusion

Applicants believe that the foregoing comprises a full and complete response to the Office Action of record. Accordingly, favorable reconsideration and subsequent allowance of the pending claims is earnestly solicited.

Respectfully submitted,

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